



## Wake up, standOff!

Piotr Banski, Bertrand Gaiffe, Patrice Lopez, Simon Meoni, Laurent Romary,  
Thomas Schmidt, Peter Stadler, Andreas Witt

### ► To cite this version:

Piotr Banski, Bertrand Gaiffe, Patrice Lopez, Simon Meoni, Laurent Romary, et al.. Wake up, standOff!. TEI Conference 2016, Sep 2016, Vienna, Austria. . hal-01374102

**HAL Id: hal-01374102**

**<https://inria.hal.science/hal-01374102>**

Submitted on 29 Sep 2016

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution| 4.0 International License

# Wake up, standOff!

Piotr Banski, Bertrand Gaiffe, Patrice Lopez, Simon Meoni, Laurent Romary, Thomas Schmidt, Peter Stadler, Andreas Witt

And special thanks to Luca Foppiano and Charles Riondet

# Overview

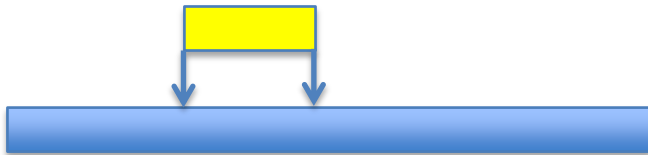
- The way towards a <standOff> element in the TEI architecture
  - Relation to ISO 24624 Transcription of Spoken Language
- Implementation issues
  - Reflecting the open annotation model
  - Open cans of worms (header, annotation body)
- Whither <standOff>?

# The simple picture



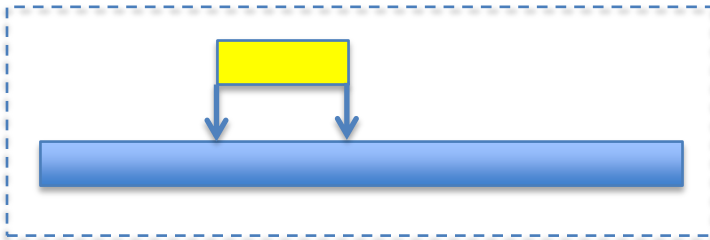
*Inline annotation:*

Intertwined with the source text



*Stand off annotation:*

Source text is referenced from outside



*Embedded stand off annotation:*

Stand off annotations attached to the same document as the source

# Why embedded stand-off annotation?

- Each time the source document is seen as the reference organisational unit
  - Corpus management
  - Transmission workflow
  - Multiple annotation layers
  - Competing annotations
    - E.g. Manual vs. automatic annotation

# Standoff: A long-standing issue

- The idea of standoff annotation is not new in general
  - Thompson & McKelvie, 1997
- Standoff annotation has been a core concept in the TEI guidelines since the beginning
  - Cf. Chapter: Linking, Segmentation, and Alignment
  - Availability of <anchor>, <span>, <interp>, <link>, @ana
- But: not integrated in the TEI architecture
  - Stand-off elements can appear anywhere in a TEI document
  - Usual trade-off between on-site vs. grouping (<back>)
- The NLP community has also developed its own means
  - GraF (Ide & Suderman 2007) , Paula (Zeldes et al. 2009), etc.
- Need for a proper, and inclusive, treatment of standoff annotations in the TEI
  - Better integration, more guidance

# Embedded standoff: Basic concept

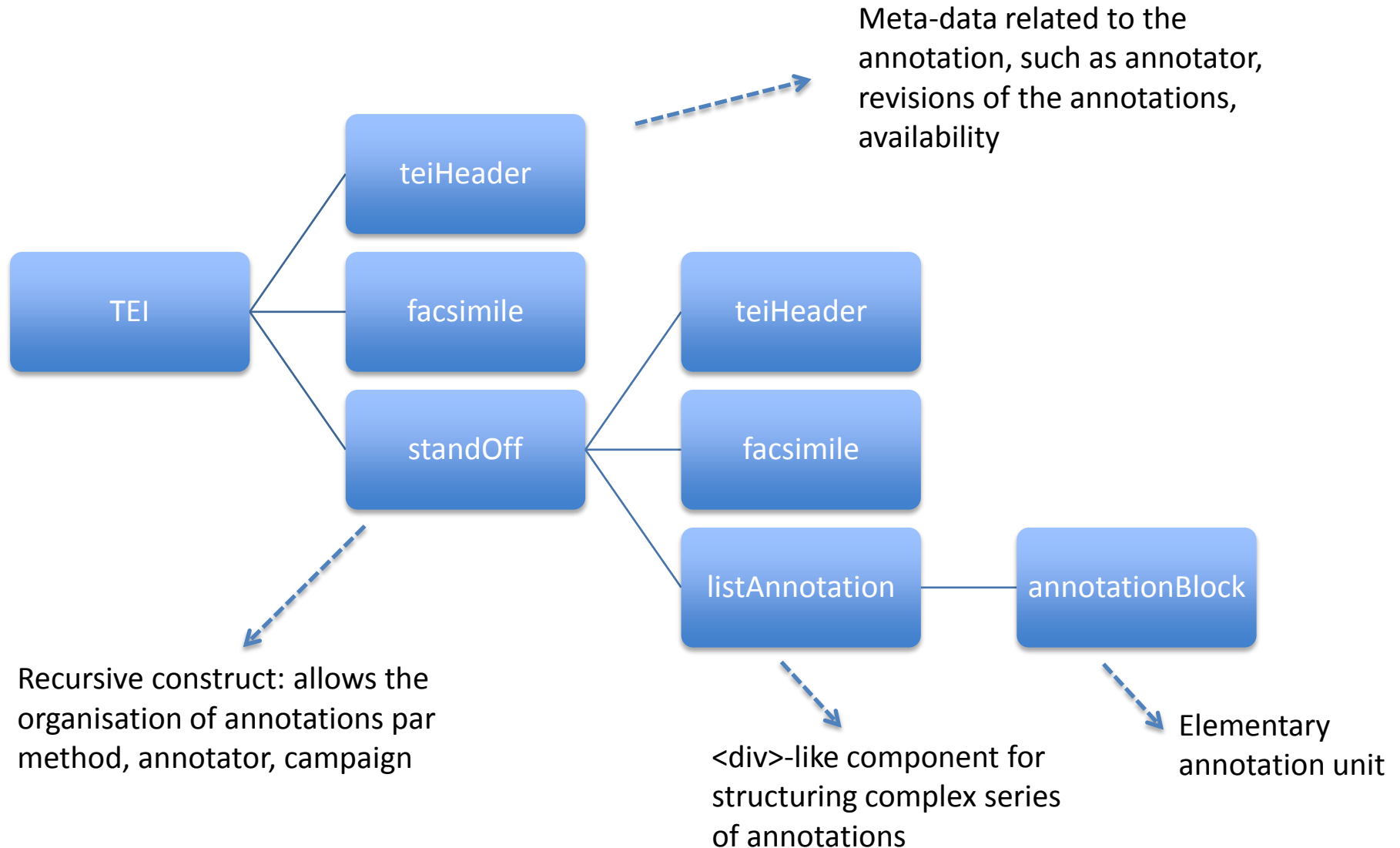
- Building up an autonomous document containing primary source and additional annotations
  - Annotations are conveyed with their specific meta-data
  - Annotations have their specific place in the TEI document architecture
  - Standoff annotations may be recursively organized
  - Standoff annotations may point to textual as well as facsimile content
  - Well-defined elementary annotation units
  - Coherence with existing models (Open Annotation, ISO TC 37) should be ensured
- Typical use-cases
  - Annotated corpora
    - Treebanks
  - Text mining
    - Named entity recognition, keyword/terms extraction
  - Human annotations on a document
    - critical editions, patent examination, peer review...
- Strong relation with interlinear annotation

# Timeline

- 2011: Paper by Thomas Schmidt in jTEI (<https://jtei.revues.org/142>)
- August 2012: new tickets by Javier Pose (EPO)
- January 2014: Workshop in Berlin
  - Draft of a first proposal
  - Setting-up a github environment
- 2012-2016: ISO 24624 project (Editor: Thomas Schmidt)
  - Need for a annotation grouping component (<annotationBlock>)
- May 2015: Council meeting in Ann Arbor
  - Several updates to the proposal
  - Stabilisation of element names
- March 2016: TEI release 6.0.0
  - New element <annotationBlock> for interlinear annotation
- August 2016: publication of ISO 24624 Transcription of Spoken Language



# Annotations in TEI: <standOff>



# Application: interlinear annotation

- Encoding interlinear annotation as inline content (in <text>)

```
<annotationBlock who="#SPK0" start="#T9" end="#T12" xml:id="au1">
  <u xml:id="u1">
    <seg xml:id="seg45" type="utterance" subtype="declarative">
      <w xml:id="w43">Nee</w> <pc xml:id="pc3">,</pc> <w xml:id="w44">hab</w> <w
xml:id="w45">kein</w> <w xml:id="w46">Führerschein</w>
    </seg>
  </u>
  <spanGrp type="en">
    <span from="#T9" to="#T12">No, I don't have a driver's license.</span>
  </spanGrp>
  <spanGrp type="pos">
    <span from="#w43" to="#w43">NE</span>
    <span from="#pc3" to="#pc3">$,</span>
    <span from="#w44" to="#w44">VAIMP</span>
    <span from="#w45" to="#w45">PIAT</span>
    <span from="#w46" to="#w46">NN</span>
  </spanGrp>
</annotationBlock>
```

# Standoff interlinear annotation

- Encoding interlinear annotation as stand-off markup

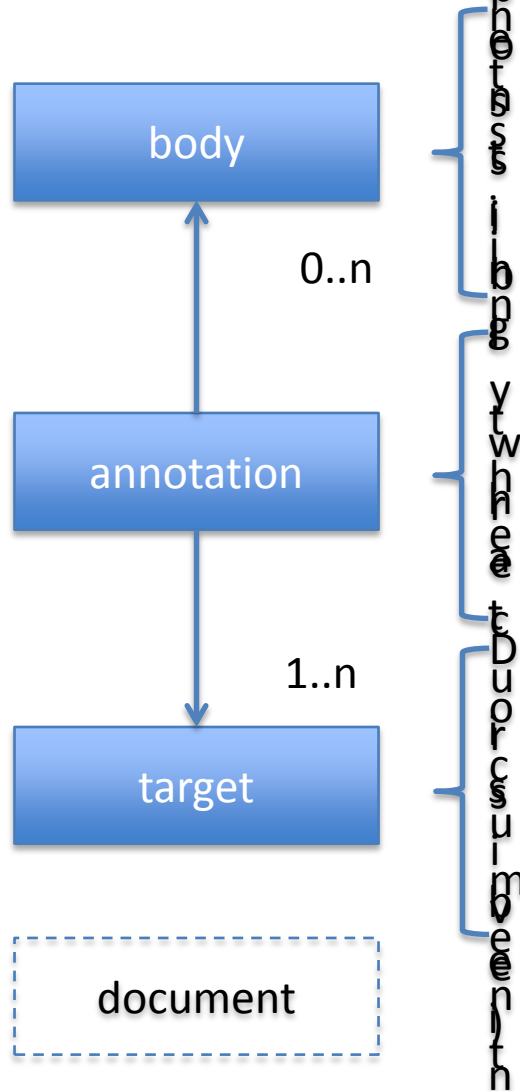
- In <standOff>

```
<annotationBlock inst="#u1">
  <spanGrp xmlns="http://www.tei-c.org/ns/1.0" type="en">
    <span from="#T9" to="#T12">No, I don't have a driver's license.</span>
  </spanGrp>
  <spanGrp xmlns="http://www.tei-c.org/ns/1.0" type="pos">
    <span from="#w43" to="#w43">NE</span>
    <span from="#pc3" to="#pc3">$,</span>
    <span from="#w44" to="#w44">VAIMP</span>
    <span from="#w45" to="#w45">PIAT</span>
    <span from="#w46" to="#w46">NN</span>
  </spanGrp>
</annotationBlock>
```

- In <body>

```
<u xml:id="u1" who="#SPK0" start="#T9" end="#T12">
  <seg xml:id="seg45" type="utterance" subtype="declarative">
    <w xml:id="w43">Nee</w><pc xml:id="pc3">,</pc>
    <w xml:id="w44">hab</w> <w xml:id="w45">kein</w> <w
xml:id="w46">Führerschein</w>
  </seg></u>
```

# Going further: mapping the Open Annotation model



<bibl>, <person>, <place>, <fs>, <note>,  
<body>, MAF, SynAF

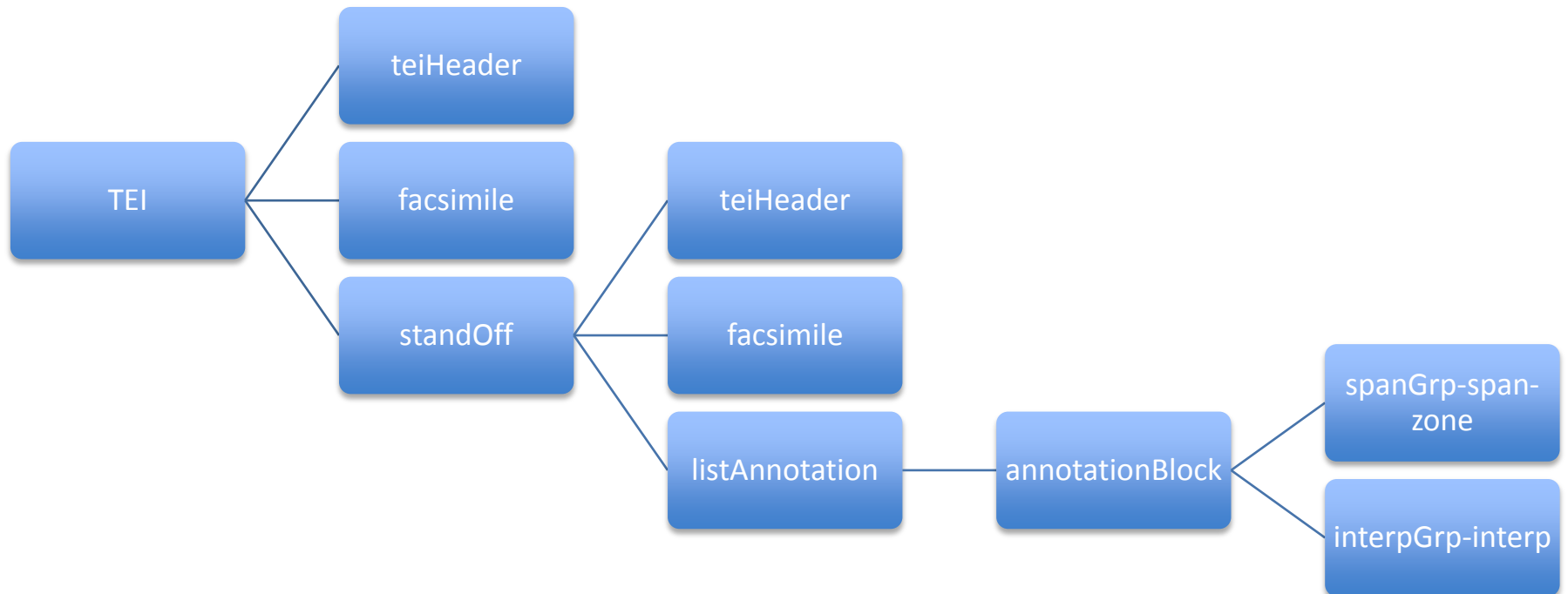
<interp type="" inst="" ana="">

<span type="" from="" to="">

<zone type="" corresp="#\_theSurface"  
ulx="1253" uly="802" lrx="22" lry="29"/>

Any TEI object (with @xml:id) or <surface>

# Going deeper into <standOff>



# Systematizing the use of `<span>` and `<interp>` in `<annotationBlock>`

- `<span>`
  - Close semantic to the notion of *target* in the OA model
  - Identifies a markable within the full-text of the document
  - Requires a precise guidance concerning pointing options
  - Kind-of business as usual
- `<interp>`
  - Extended usage
  - `@type`: provides the type of the annotation
    - Cf. `@type` on the parent `standOff` element
  - `@resp`: the entity who is responsible for this annotation
  - `@inst`: lists the components (span or surface) to be annotated
  - `@ana`: points to annotation content (body in OA speak)

# Prototypical example

Dates in a named entity recognition context

```
<annotationBlock>  
  <date xml:id="E4N1" from="1944-08-17" to="1944-08-25">  
    17 - 25 août 1944</date>  
  <interp ana="#E4N1" inst="#d1e173"/>  
  <span xml:id="d1e173" from="#E4T6" to="#E4T10" />  
</annotationBlock>
```

Great advantage on readiness and programmatic treatment

# Example from the ANR Termit project

```
<annotationBlock>  
  <fs>  
    <f name="lemma"><string>corpus</string></f>  
    <f name="pos"><symbol value="NOM"/></f>  
  </fs>  
  <interp/>  
  <span target="#t1"/>  
</annotationBlock>
```



# Can we make the model more implicit?

```
<annotationBlock inst="#t1">  
  <fs>  
    <f name="lemma"><string>corpus</string></f>  
    <f name="pos"><symbol value="NOM"/></f>  
  </fs>  
</annotationBlock>
```

- Closer to the speech transcription version
- Risks:
  - Loosing the link with the OA model (hindrance to automation)
  - Allowing all types of possible (creative) encodings

# Issues (many)

- Which header do we need?
  - Standoff annotation usually requires very restricted meta-data
  - If we adopt the TEI header, we need to make it more flexible...
    - Should we have a convergence with biblFull (where profileDesc is missed, BTW, SF:533, deeply ambered)
  - Stand-off annotations may be generated by humans and machines
    - how to put <author> (editionStmt) and <appInfo> (encodingDesc) at the same place?
- How do we provide guidance concerning annotations?
  - Mapping the OA model to precise TEI constructs?
  - Allowing a wide variety of possible vocabularies depending on the use case?
    - TBX entries, MathML, full-text annotation (<body>?)
  - Aligning with the various ISO standards: MAF, SynAF and SemAF series

# Leaving dust under the carpet for today: pointing mechanisms

1. Offset based mechanism: *string-range(...)*
  - not stable in case the original text is modified. The annotation needs to be rebuilt
2. word tokenisation `<p><w>.</w><w>,</w></p>`
  - may generate an insane amount of data
3. `<span xml:id="s1" to="#a1"/> + <anchor xml:id="a1"/>`

Example:

`<p>....`

`<span to="#a2"/><span to="#a1"/>le petit chat<anchor xml:id="a1"/> est mort <anchor xml:id="a2"/>...`

`</p>`

- what about the purity of the source text?

# Next steps

- Finalising the content model of <annotationBlock>
  - Completely open model?
  - Constrained with specific model classes? (OA)
  - Alternation between the two (or more) options
- Gathering reference example from existing implementations
  - Istex, Termith, EPO, IDS
- Finalising the graft in the guidelines
  - Section in chapter 16 Linking, Segmentation, and Alignment?
- Don't give up the fight...

**MERCI !**